

PYROTECHNICS

THE NOW & THEN NEWSLETTER OF
GENERAL TECHNICS

PERPETRATED largely by
JEFF DUNTEMANN
& CAROL DUNTEMANN

NO. 14 JUNE 1978
THE PAST WAS ROTTEN!

The only thing that makes the "Good Old Days" so good is a bad memory.

I don't think anybody really realizes how terribly true that is. Yet it makes sense. There is an undeniable vector in human nature toward pleasure and away from pain. Why, then, should we carry any more pain in our poor skulls than we have to? When the present becomes the past, it ceases to be a threat, so we gently forget about the dragons and fondly amplify the beauty of the princesses. It is the comfortable way.

It's a damned good thing the past is out of reach. Fools would fly to it like moths to the flame. I once heard an otherwise intelligent and sensible English major at DePaul wax ecstatic on how she'd love to get away from our noisy, sterile society (unspoken addendum: made noisy and sterile by technology) to consort with cultured gentlemen at the court of Louis XIV. Well, if she had her druthers that wouldn't be a bad deal, but if she'd get as much choice in her position in the past as she got in her position in the present, the laws of statistics say she'd much more likely be a peasant woman breaking her back in the fields to support that gilded silliness at Versailles, dying of old age at forty if something else didn't get her first.

This craving for a Golden Age often edges over into the pathological. In a well-written but rather silly book, Time and Again, Jack Finney's hero barely escapes with his life from the filthy, crime-ridden corruption of Victorian New York City, only to turn around and go right back. The ironic thing about Finney's book is that he lays out all the hideous details: Infants drugged with laudanum endlessly swinging on baby-swings in department store window displays; homeless four-year-old children burrowing into manure piles to escape death by freezing; people with open wounds begging and dying in the streets; the police department openly and brazenly persecuting the enemies of the rich and influential. I think I'd H-bomb the place; Finney rhapsodizes on it as though it were Valhalla.

Maybe I remember a little too well, but as far as I'm concerned, you can have the past. During my younger years I was endlessly tormented (as were many of you, I understand) by the bigger, often stupid, usually terribly ordinary kids who played baseball and football and all the things we thought were brutal and stupid. Looking further back into the past, I see nothing but ignorance, cruelty, and tyranny. There has never been a finer age on Earth than we enjoy today. I'm not claiming that there is nothing wrong with our age. We have our share of stupidity and injustice. But I promise you that any era of the past which you pick will have plenty more.

My English profs were fond of claiming that all the great minds of our civilization lived in the past. True. But their great thoughts live on into the present. I call that an improvement. Sameul Johnson was dirty, smelly, and generally unpleasant to be around. His unpleasant self is dead, but his brilliant thoughts will live forever, enriching all the better todays which crystallize out of the future. We have Ben Jonson without his pugnaciousness; Alexander Pope without his deformity. And something else, too: In the Bad Old Days, music and fine arts in general were-



GENERAL TECHNICS

the sole property of the rich and powerful. These days any man with the price of an FM radio can hear symphony orchestras which would have made Louis XIV drool. All the literature of the ages is free to the poorest of men in the Public Library, and the greatest works of art can be transported around the world in speed and safety for the masses to see. You know what we can blame that on: Technology.

Justice? In the past? Come on! Human beings were bought and sold like animals. People were executed by kings and nobles for any reason or no reason at all. Women were the playthings of rich men, and the workhorses of not-so-rich men. Think of Chinese coolies in the West. Think of the Holocaust, less than ten years before many of you were born! There are no words, no songs, no images, no means of human expression capable of showing how horribly, hatefully, hideously rotten the past was.

We are far from a totally just world, but we are closer than we ever were before. People are demanding their rights, and getting them. Tyranny and corruption are being questioned, and then purged. It's a mighty deep infection we're purging, but we're getting there.

How? One thing above all: Mass communication. People cannot improve their lot without knowing what is going on. Arousing and directing public outrage requires a means of dropping evil right in front of people's noses, with all the facts and suggestions of what to do about it. Newspapers. Books. Radio. And even, flawed as it is, TV. And what common element lies behind all those things: Technology.

The real foundation of the civil rights movement, the women's movement, all forces pushing toward justice, is technology, pure and simply. Without it, we begin the long, dark slide back to being vicious animals.

Don't ever expect to be thanked for it, but take comfort in knowing that everything that is good in this world is due to the efforts of people like us, who love and understand technology. Everything. And if you think I'm wrong, I double-dog dare you to prove it.



G AT MARCON

From now on, I suspect everybody is going to expect me to arrive at cons in a three-piece suit. Well, unlike some people, I have to work for a living, and the way I tend to schedule things I barely have enough time to fly up the stairs and grab a suitcase on a Friday night before heading for the airport. And so it was on Friday before Marcon. But it was worth it.

And besides, I rather like three-piece suits. Maybe I'm getting old.

Columbus is the second nucleus of GT, with more people in the area than any other place except Chicago, where it all started. And so it happened that I finally got to meet a number of

GENERAL TECHNICS is an organization of fannish techies (and not techish fannies, as some wiseass reported) who share data, resources, and experience in pursuit of a good time and occasional profit. The group meets mainly at cons, hamfests, and private Berserker Weekends.

MEMBERSHIP is terribly difficult to obtain. You must somehow scrape up a number of 15¢ stamps, and then at great effort write a letter explaining what your qualifications as a techie are to

Jeff Dunteemann
6208 North Campbell Avenue
Chicago IL 60659

including those stamps. If the abovementioned person can read your handwriting you are an **APPRENTICE TECHIE** and entitled to call yourself a member of General Technics. You will also receive

PYROTECHNICS until your stamps run out. Renewal of membership is synonymous with sending more stamps. If you decide to quit, we will use one of your stamps to send the rest back to you. If you're nuts enough to want to become a **SECRET MASTER UV TECHNOLOGY (SMUT)** you had better write to

Tullio Proni
530 West Walnut
Kalamazoo MI 49007

because I don't have anything to do with it.
ANYTHING ELSE, ask me. I may not know but I guess better than anybody else around here.

people who have been with us for quite some time, like Tom Andrews and Jeff Tolliver. I may well have met more than two thirds of you now, when I had barely run into half before.

As the weekend progressed, I periodically grabbed GT people and hauled them out onto the lawn for a mugshot on my crippled Hanimex Praktica. The pictures will appear in this and succeeding issues as a way of avoiding staring at a person for ten minutes before you realize he's One Of Us.

GT attending: Carol and I, Nikki Ballard, Steve Johnson, Tullio, Chip Morningstar, Dave Powell, Jeff Tolliver, Tom Andrews, Bill Leininger, Bill and Michelle Colsher, Alice Insley, Phil Foglio, Alex Ellingsen, Didi Ellingsen, Mike Bentley, Rolf Wilson, Bill Higgins, Barry Gehm, Renee Seiber, Martha Soukup, Mark Evans, and Mark Hyde..

Cosmo Klein, in his new "dumb" configuration (minus his upper assembly and its stonkered CDP1802 chip) rode to the con in Bill Colsher's trunk for his con debut as a radio-controlled whatchamacallit. People kept asking me where his can was. I brought Cosmo's car-battery charger, but neglected to bring a charger for the Standard SRC146A walkie-talkie which acts as his control box. As a result, by the end of the con control range was down to about five feet. We live and learn.

Steve brought out his home-assembled Digital Group Z-80 in its slick plex-fronted rack mount. He had it connected to a dated-looking but excellent 19" video monitor which he bought at auction from the Ohio State government for some absurdly low price. As the weekend went on he demonstrated his new music compiler by playing a number of classical pieces, including Concerto for

MOS Output Port #1 in B Minor. On the big screen we saw a rather slow BASIC version of LIFE grow and fester. LIFE should only be written in assembler; waiting half a minute for each generation is like watching concrete harden. It occurred to me that it's about time to ask all you computer freakos to send me an update on what you've got up and running. We haven't had a GT home computer update for a long time. Send me what make & model, amount of RAM and ROM, peripherals, and anything else that will pin it down.

Mark Hyde brought in what must be the finest piece of GT gadgetry ever seen, at least by your Editor. It was a collaboration between Tullio and Mark himself, resulting in a completely portable hand-held 2 milliwatt gas laser, encased in an all-aluminum body similar in form to the plexiglass Proni xenon-flash cannon. It had its own stock riflescope, shoulderstrap, and NiCad pack good for about 20 minutes continuous beam. The laser unit is a self-contained module from RCA which Tullio showed us last summer, needing only a high DC voltage to operate. A DC-DC converter inside the body of the cannon supplies the voltage from the low-voltage NiCad pack. Apart from the wizardry of portable-izing a respectable laser, the gadget is one fine piece of metalwork. My hat is off to Mark and Tullio for one helluva good job.

"Joe, the original GT robot, was not at Marcon. Why? Read all about it in QUARKS!

The accommodations at Hojo were half past tacky, but I must admit that they knew how to heat a swimming pool. That was the warmest water I have swum in since my honeymoon in the Caribbean. A number of GT members took advantage of the warm water, with Mike Bentley doing his homework by the poolside, since he can't swim. Alas, since there was no skinnydipping party I was unable to show off my hernia scar, as some of you have requested. Maybe next time.

Saturday afternoon a PR man from Rockwell gave a talk on the Space Shuttle program. The man obviously did not understand the nature of his audience, since he kept trying to explain why things don't "fall down" in space. Maybe he thought we were a CPA convention.

Saturday evening saw an excellent GT business meeting. For the first time, we declared the meeting closed to non-members. This was not to preserve any secrets. It was merely a way of keeping numbers down in the cramped confines of Steve's motel room. It worked reasonably well. We discussed the last alternative means of getting a Techie-Talkie network underway; Amateur Radio. As an inducement to getting into hamdom, I proposed giving all General Class or higher ham license holders Master status automatically. Tullio, who runs the SMUT program, spoke briefly of concretizing the SMUT achievement process, but didn't decide on anything definite other than the ham license clause. Basically, it comes down to executing a project of some sort, something which involves a good deal of effort and skill. Write Tullio with your proposals, if you don't choose to go the ham license route. Sending Tullio a photocopy of your ham ticket makes you a Master. All new Masters are subject to initiation at cons, but the process is a deep, dark secret lurking in the nether vastnesses of Tullio's skull. I'm just damned glad I got in at the beginning.

In other action at the meeting, Jeff Tolliver announced that he would soon be producing the original GT T-shirt iron-on transfer, identical to the ones produced a year or so ago by Bob Halloran. He will be selling them for a buck apiece to defray the considerable setup costs.

After the meeting we retired to the French Market, an unbelievable accretion of hotdog stands and doughnut counters, for a chop suey dinner on paper plates. It was the best food I had at the convention.

After dinner we had The Party. I had about 80 copies of Pyro 12 to pass out, and they went fast. We had a filksing-jokefest generally starring Bill Higgins, Barry Gehm, and Bill Colsher, who introduced a brand new techie-filk, "CMOS Wizards." (To: "Pinball Wizard") We sang all the songs in Pyro 12 and started in on others. The pop went quickly, and the beer didn't. A chappie who wandered in smoking a cigarette was booted out on his ear. We branched out into standard folk songs and even tried harmonizing. We heard the infamous Barry Gehm Brick Joke, which I had heard as a cub scout and had utterly forgotten. It was some party.

A dazed Alice Insley made her artistic debut by seeing her first artshow piece go at auction for five times the minimum bid. Phil Foglio, on the other hand, did rather poorly. We all have our ups and downs. Sunday afternoon, while waiting for the time to hit the airport again, we passed around slides I had taken at various cons and parties. Hopefully by Windycon I will have a Carousel projector to do it right.

The very best thing about Marcon was the tremendous feeling of Us that prevailed among GT people. The spirit of togetherness in the air at the GT party was incredible. Many backs were rubbed while the songs were sung; many old friendships were renewed and new friendships created. At the bottom line, that's what this whole thing is for. Thanks, everyone, for making it all work.



G BIODATA



NIKKI BALLARD

Born 12/5/52, I first became interested in electronics 20 days later when I observed the oscillations in the bubble lights on my grandmother's Christmas tree. Being singularly ill-equipped at the time to do any investigating, I was forced to suppress the impulse, a frustration which proved so traumatic that the overt desire to tinker didn't arise again for almost 23 years (and then not before repeated exposures to the Christmas tree lights in Tullio's ray guns.) In the interim, I engaged in a maturation process commonly known as "growing up." This taught me several very important things, among them: The American educational system was not meant to teach anything important; most people didn't read nearly as much as I did; girls aren't supposed to do well in science; and bright kids are not popular in school. I also discovered that there was not much I could do about any of this. **3**

When I was eleven we moved from Saginaw, Michigan to Charlevoix County (also in Michigan) from the city environment where everything I wanted was close at hand to a farm in the country where I had no friends and very little of anything to do. Although I'd read (and written) science fiction prior to this, it was there that I became addicted to the stuff. After depleting the local libraries, I turned to the myriad DC comics to slake my thirst. I fell briefly into (and quickly out of) comics fandom and narrowly missed finding SF fandom in the process. Sigh.

I distinguished myself during high school by refusing to do book reports on anything non-SF. As my high-school librarian was also an SF person, I seldom ran short of materials. I spent most of the rest of my time fighting for the rights of the oppressed student and making subversive suggestions to the administration about the desirability of girls' sports teams (back before Title IX, remember?).

All this hot air was finally harnessed in my senior year when I joined the debate squad and became a class-act debater. This also aided my yearning to spend more time away from school than in it. I continued to despise the American educational system (by this time I'd found a copy of Summerhill and knew I wasn't alone), read as much as possible, was good in science and mainly unpopular. After graduation, I left home to attend Central Michigan University in Mt. Pleasant. In my second semester as a freshman, I ran across a special topics course called Fantasy and Science Fiction (I was an English major back then.) (There are worse things to be--Ed.) Battling my way into one of the sections, I was delighted to find that John Pfeiffer was not only an excellent instructor, but also had an extensive SF library at home. Thinking quickly, I installed myself as chief babysitter for his seven children and gained permanent access to his collection. I also gained a permanently warped personality and to this day may be heard muttering about what it's like babysitting for that many people all at one time.

It was through John that I met Joe DeBolt, Mt. Pleasant's other SF person. Joe is directly responsible for dragging me into fandom. The whole summer before Disccon was spent brainwashing persuading me that I wanted to spend 15 hours (and a lot of money) travelling to a dubious paradise where "there'll-be-a-lot-of-authors-and-everyone-will-really-be-friendly-so-shut-up-and-get-in-the-car!" My lasting memory of that Worldcon was the discovery of other people like me--people to whom I don't have to explain my interest in SF. The last day of the convention was spent trying to ~~persuade~~ brainwash me into spending 15 hours and the forty cents I had left travelling back to Mt. Pleasant and leaving all that craziness behind. I suppose you can tell I was hooked.

. It was after the first Autoclave (and an entire weekend of ray gun exposure) that I began to realize that I was a latent techie. I found myself attracted to GT from the first time I had heard about it (which was either at Autoclave or at Big MAC) but hung back because I couldn't do any of the stuff I readabout and saw being done. Robots? Ray guns? Sigh. At last I compromised and decided that at least the desire to know counted for something (It counts for everything in the world, Nikki--Ed.) and sent my stamps in for Pyro. I collected a long-delayed lesson in LEDs from Tullio, and now you're stuck with me.

I still reside in Mt. Pleasant with my Mexican shepherd, Monster, living a life that has been described as unbelievably mundane. I work full time in the CMU library cataloguing department as a paraprofessional while trying (vainly I sometimes think) to finish my undergraduate degree (major in psychology-developmental emphasis--minor in business administration) so I can graduate and go to library school. In my spare (spare?) time I fight for the rights of the oppressed hourly worker and generally endeavor to spend more time away from work than at it. I am a member of the Executive Board of our Clerical Association and of

its career track committee. (We're trying to establish career paths and increase opportunities for upward mobility for our clerical workers.) I also sit on CMU's affirmative Action Council and am State Programming Chairman for the supportive Staff Section of the Michigan Library Association. (Like I said, mundane.) I'm an avid bridge player (or as avid as anyone who doesn't get to play regularly can be) and also bowl, play tennis, snow ski (sometimes), write SF, practice yoga, play chess, garden, sew and engage in other various forms of needlework. I am definitely a night person--eliciting a coherent sentence from me before noon is harder than you think. Someday I am going to: learn to fly a plane, own a farm, take up carpentry, sell a story or two, visit Scotland, and be a Master Techie (not necessarily in that order.) I remain disenchanted with the American educational system, read voraciously and persist in liking science. Since joining GT, I've discovered I have to keep my rusty brain going full-tilt just to keep up with you crazies. Needless to say I am ecstatic.



leaning tower of mesklin

-BLOOM

NERTZ & BOLTS

G LOOKS AT BOOKS

BY MIKE BENTLEY

I have been stumbling around the electronic music field for some time, and have come across a couple of magazines that might be of interest.

The first is called Symphony, a creation of the P.A.I.A. company, whose ads are not unknown in electronic zines. The gluer-togetherer of the Gooch Synthetic Woodwind and ace synthesizer and Plato person, Sherwin Gooch, has great respect for the magazine and for the people at PAIA. Symphony contains information on the developments of real cheap synthesizer equipment (with certain computer-controller type designs, note.) For more info on the magazine, write PAIA.

The second is called Synapse, intended for the professional music audience. I get this magazine to gawk at the incredible concentration of knobs, keyboards, and amplifiers. Recent articles concern the toys and stules (Stules? What was that, Mike?-Ed.) of Timo Laine, a guitar synthesist, Jan Hammer, and Karlheinz Stockhausen. Any circuit design printed is explained in detail. (I noticed that op amps are quite popular in Synapse.) Six issues for 8 bucks: Synapse Magazine, 2829 Hyans St. Los Angeles CA 90026.

It's been two or three years since I've had the time to read an amount of SF in any reasonable volume. I guess, as a side effect, it's been some time since I've read a novel that is aimed (?) at a very narrow section of the "gadget appreciating" audience; most recently I've been going through stuff that boldly attempts things like plot, characterization, and that sort. It seems I have recently found a book that attempts to reverse a trend (?) evolving for the last sixty years.

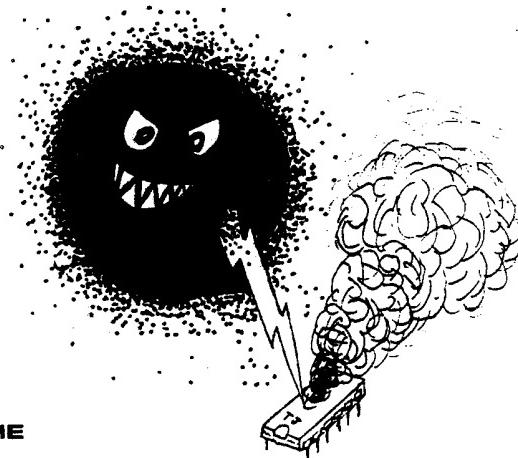
The Adolescence of P-1 is an expensive sunuvugun, at \$4.95 in paperback. Within you will find a story which can be sectioned very neatly into several parts: story, sex, story, sex, story, sex, and story. The book might have hit it off (story) were less of a Berlin Wall. As it stands I guess the zones labelled "sex" were inserted to mark "story" lack. Such run-of-the-mill writing is not to be sought after.

The main character is a PROGRAM. Not a computer, as it apparently is in Collosus and That Movie Which Needs No Introduction. The program, named P-1 (Privileged One) is initially created by a C.S. student at the University of Waterloo. Gregory Burgess decides he is going to try and do something that was hinted to be possible, crack an IBM 370/75 where it hurt--

--and does it. Then Gregory creates a program that can learn by itself (in PL/1, natch) and unleashes it in the 370/75 and seven other IBM systems that are tied together via the Bell system. Little did Greg know, there are more than eight systems tied together in that particular net.

The program disappears, Greg's attempted abort doesn't work, and the flashback ends. Three years beyond, Gregory is confronted by a program asking to talk to him, a program that has secretly grown to inhabit precisely 20,193 IBM machines. This is where the story starts to roll.

The Adolescence of P-1 is jargonistically superior to any other SF book involving a computer; the author uses readily-available present-day lingo. I think it is technically superior, but I won't know for sure until I thumb through some IBM manuals at school to find out what some of the words mean. The writer is obviously not just an author who did a little research in the computer industry; the writing isn't good enough, although the dialog is interesting in places. There are certain perspectives which interest me, as my major involves software of all flavors. Otherwise...yuk.



THE

GLITCH GATE

STRIKES!

BY AL DUESTER & TODD JOHNSON

In case some of you out there haven't heard, there are batteries in the world that beat out NiCads by a long shot. My favorite is the Gates cell. Basically, they are miniature car batteries-rechargeable, fully sealed, powerful lead-acid cells. With a Gates you can vaporize a paperclip without even bothering the cell. High currents can be drawn for an extended period of time. The "D" type Gates is a 2V (actually 2.2V) 2.5 amp-hr. Current selling price is \$5.7, I believe. (Herbach & Rademan has them for \$4.95 as of mid April '78.--Ed.) True, Eveready has a 4 amp-hr NiCad, but it won't do for high current applications. GE is also introducing their own line of Gates cell lookalikes, so prices may be dropping. If enough people want them, maybe we can set up a club order.

Does anyone out there have, or have access to a supply of B20T Eveready NiCads? These are rechargeable watch-sized batteries. I don't even have to mention what numerous uses these have. A club order would definitely be in order here, as we might be able to get a quantity discount.

On the Techie-Talkies, it would be a good idea to incorporate a coding system so that we could not only individually call up units, but have one code which would bring up all Talkies in the network. This would be helpful in cases where someone wanted to initiate a search for a non-techie, an emergency meeting has been called, or someone had something stolen from his hotel room. I am attempting to get some LP2700 units to Jeff for prototyping. (Note: This is an old article which I recently found again. Recall, sadly, that the LP2700 is no more. The whole Techie Talkie concept is in grave danger of being scrapped due to an inability of the Ed. to come up with a TI which people can afford. One more law to add to the list: Cheap high technology is not easy, and easy high technology is not cheap. Sigh.)

If anyone is interested, there's a damned fine newsletter about electronic music that's chock full of schematics and other stuff. Write: Electronotes, 213 Dryden Rd. Ithaca NY 14850.



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Attention, readers of PT! I am currently redesigning my KIM-I support systems. As such, there is quite a bit of junk in my basement that you the Master Technologist may be able to use. Such as:

TVT-6, assembled and burned in.....	\$35.00
Univac keypunch keyboard.....	15.00
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Kurt Sakaeda
4933 N. Ridgeway
Chicago IL 60625
(312) 539-0910

BUILD A ROBOT

by Doug Van Dorn and Gretchen Duntemann

(to: "Plant a Radish" from The Fantasticks)

Build a robot, get a robot,
Anything will do.
Build it out of garbage cans
And lots of Elmer's glue!
Or, if you'd rather
You could gather
Polystyrene foam;
Then if he runs out of juice
You can always bounce him home!

They're dependable!
They're befriendable!
They're the best pal a techie'd ever have.
They're computerized!
Compartmentalized!
And the next thing you know old Cosmo Klein'll have
An anti-grav!

And is that rover they sent over
To the plains of Mars
Really made of PC boards
And five-quart pickle jars?

Build a robot, get a robot,
And a brand-new friend.
Think of all the things he'd do;
The services don't end!
Cook your dinner, pick a winner,
Run and fetch a beer--
He'll do all the footwork,
All you have to do is steer!

He can entertain!
Pull a wagon train!
And your girlfriend
Will think he's kinda sweet,
Until the program jams
And through the wall he rams,
And your roommates throw you
Out into the street--
Not on your feet!

But if all people
Up and leave you
Don't just sit and moan!
A man who builds his own robot
Will never be alone!
He'll never be a-
Never be a-
Ne - ver - be - a - lone!



THE PYRO CRUNCH

Sometimes I think the only thing that's worse than failure is unexpected success. Lately I find I'm having a hard time keeping up with GT's incredibly popularity. The time and work involved in typing, editing, formatting, laying out, running, collating, stapling, and labelling an issue of PyroTechnics is getting to be tremendous. Gordon Garb, creator of PseudoTechnics, commented to me on the phone that he had no idea what a job putting out something like that was. I breathed an inward amen.

The operation is tremendously streamlined compared to what it was when it began way back in early 1976. Since that time I have acquired a computer terminal here at work, a good text editor, and a wonderful wife to help me out, enabling Pyro to grow to be something pretty considerable. It's grown so popular, in fact, that a full list of the Mob every issue would take up half the space. That's why The Mob will be run only every other issue from now on.

I'm not complaining. I have a ball doing this. But to keep from putting out fewer and fewer Pyro's as the time crunch tightens, I need ideas on how to handle things more efficiently. Let me know what your ideas are.

I have begun relying on the local Thursday Night Meetings of the Rogers Park--North Side fannish community here to collate and staple. Production is not a terrible problem at the moment. The hardest work lies in handling memberships. Stamping and labelling takes more time, I think, than almost anything else, when combined with the job of answering letters and keeping people's stamp collections straight.

So I've got to make a request. Don't send in stamps for friends. That's cheating. It says right on the masthead that in order to get Pyro you have to write to me yourself, explaining why you think you're a techie. The criteria are not stringent; in fact, nobody has been turned down yet. The important thing is that you care sufficiently to take the time and effort to write to me. That's what counts. If friends of GT people are too "lazy" or whatever to send stamps themselves, it tells me they aren't all that interested in GT. Interest and dedication to the techie cause are what gets you in, not money to buy a hundred year's worth of stamps.

I am not going to charge for Pyro. Not now, not ever. It doesn't cost me much, and I don't need the money that badly. Many of you are students, most of you have little money to spare. I'd rather you invest it in techie projects. What I charge for my time and effort is a bit of caring for the organization and the idea behind it. Walking into the GT room at Marcon and feeling the tremendous atmosphere of community is payment enough.

That is the final result. It all starts with a letter and a couple of stamps. Care. Build. Assist each other. Keep in touch. That's all I want, and it'll be worth it.



3 WEEKS LATER...



IT MAY OR MAY NOT COME IN THE MAIL

"THOUGHTS ON PARTS"

Poly Pak Savvy--This outfit has been around for a long time, and is a little difficult to figure out. Some people can't stomach the place; others like them a lot. What's the truth?

My orders have gone both ways. They generally take a little longer than most places, and the quality of goods is less than average. But after several experiences I can offer guidelines which will improve your odds. First of all, do not buy their LEDs. Period. I don't know why, but anything they offer in the optoelectronics dept. is crap. Secondly, resistors and capacitors are OK. I've had no trouble with items of that sort. #3: Buy only the more complex ICs, and those only ■

if they cannot be had cheaper elsewhere. For some reason, their simpler TTL and CMOS chips are much more likely to be junkers. I bought forty 2101 MOS RAMs during a Penny Sale, and not one has been defective. But several LS TTL chips arrived with legs missing. #4: Batteries and solar cells are usually OK. Why? Who knows? #5: On weird stuff, you pays your money, and you takes your chances. But remember, they always stand by their guarantee. It's money-back, and they mean it. Don't hesitate to bounce anything substandard.

One final word: watch out for the word 100%. At PP it can mean two things. 100% prime means the item meets all factory specs. There is also 100% hobby material, which means that the item will not blow up in your face. All other bets are off. If a transistor conducts, it meets 100% hobby. 100% hobby only precludes opens and shorts. Virtually any other kind of defect is permissible under this category.

What really gripes me is when PP uses 100% all by itself, with neither "prime" nor "hobby" behind it. What does that mean? It means: Don't buy it!

RW Electronics 3203 North Western Avenue, Chicago IL 60618. I discovered this little place in the back of 73 Magazine, when in fact it's three miles south of my house. In the shadow of grand old Lane Tech High School is a beat-up shack containing a marvelous selection of surplus parts. The proprietor seems honest enough, the prices are good, the selection fair. If you're in the area, drop in. Everybody else, send for a catalog. New places like this are rare and should be encouraged.

Junk Mail Is Wonderful! Why people complain about junk mail I can't figure. You can always toss it unopened. It costs you nothing and helps subsidize the Pissed Office. I love it. Any techie worthy of the name should keep a complete file of mail order catalogs, and most can be had for free by circling numbers on the business-reply cards found in back of most techie magazines. 73 gives away one life sub per month to the person whose reply card is pulled from a hat. I send mine in every month. Maybe I'll hit it big someday. In the meantime, my mailbox is never empty. Do it!



THE TECHIE HOSPITALITY ROOM

It's official, people. GT is going to host a Techie Hospitality Room at Iguanacon. We have it for the length of the con, open 24 hours if we like. First, let's all cheer.

Now, we had better organize to make it work.

First of all, what do we want to accomplish? The way I see it, we want to provide an atmosphere suitable for letting lonely techies relax and find their element. This means other techies, of which there should be no terrible shortage. It means refreshments, which shouldn't be too terribly hard to provide. We can all pitch in, or maybe pass a hat. In keeping with tradition, it should also mean having a certain number of techie toys available to show off and have fun with.

No big thing. Everybody who is going to Iguanacon, bring your favorite techie toy. We want to see lots of rayguns, blinking thingies, noisemakers, robots, radio gear, test equipment, anything. Whether you made it or just bought it, we want that room to smell of techie.

The exact room in the Hyatt has not been definitely decided on. I asked for a room with windows, so that I could set up some sort of ham radio station. I also asked that whatever room they give us have lots of outlets, and a sink if possible. Maybe I'm asking for the sky, but in my experience he who don't ask don't get.

We need people to man the room. There'll be a lot of relatively expensive stuff in there, and we don't want any of it to "get legs." Which means the amount of time we can keep it open depends entirely on how many people show up at the con.

So--The Big Question: Who's going? Please drop me a note and let me know. Let me know when you're arriving and how you're getting there. I especially want to know if anyone will be driving, either from the Chicago area or from somewhere from which Chicago is on the way. I will pay, and pay pretty well, to have someone drive Cosmo Klein and a small box of other junk there and back. Cosmo is the ideal travelling companion. He doesn't tell stupid jokes, doesn't molest attractive femfans, doesn't drop banana peels on the floor of your car. His feet don't smell. (He doesn't have feet.) He will pay his share of the gas. How can you lose?

I want to draw up a GT manpower list for the room, with preferences as to when you'd like to work it. We will be shutting the room down for the Big Events (like the Hugo Banquet and Masquerade) unless someone deliberately prefers to stay in an empty Techie Room. I'm wondering if anyone with a flair for public speaking would like to give techie-talks on the subject of his choice. This should be done in a down-home humorous vein, something like listening to George Ewing after he's had a couple of beers and is telling Jim Ransom stories. (Jim tried to make diamonds once by exploding a shaped charge over a sandwich of hard steel plates with charcoal in between. That sort of thing.) Well?

Of course, we will have the traditional GT Party in the Techie Room, complete with filksing and associated activities. Bring those Nuclear Ukes!

In short, Iguanacon promises to be GT's finest hour. Don't miss out on it. Don't miss your editor giving a presentation on building robots before an audience of thousands! Don't miss Carol's long-awaited return to the Ukelele! Don't miss Bill Colsher's latest filksongs! Don't miss seeing (and maybe operating-- get those licenses!) the first ham radio station built in sardine, herring, and cat food cans! Solar power! Techie-talk! Dancing girls! Come to Iguanacon, dammit!

ODD BOOKINS LIFTED FROM HERE & THERE

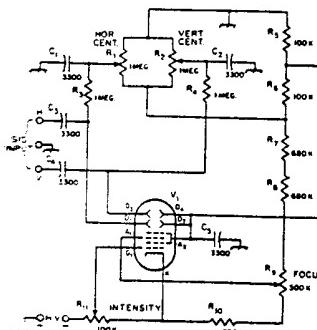


Fig. 17-26 - Oscilloscope circuit for modulation monitoring. Constants are for 1500- to 2500-volt high-voltage supply. For 1000 to 1500 volts, omit R5 and connect the bottom end of R7 to the top end of R9.

R1-C5, incl. - 1000-volt disk ceramic.
R1, R2, R9, R11 - Volume-control type, linear taper. R9 and R11 must be well insulated from chassis.

R7, R8 - 1 watt.

V1 - Electrostatic-deflection cathode-ray tube, 2- to 5-inch. Base connections and heater ratings vary with type chosen.

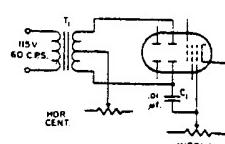


Fig. 17-27 - A quasi-linear time base for an oscilloscope can be obtained from the "center" portion of a sine wave. Coupling the ac to the grid gives intensity modulation that blanks the retrace. C1 - Ceramic capacitor of adequate voltage rating. T1 - 250- to 350-volt center-tapped secondary. If voltage is too high, use dropping resistor in primary side.

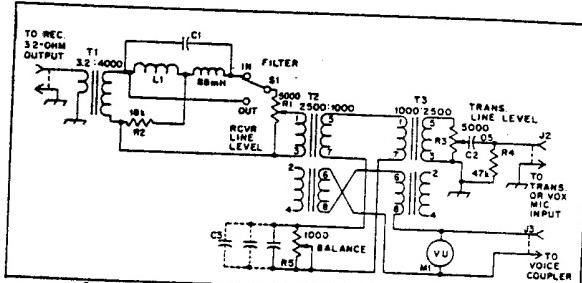
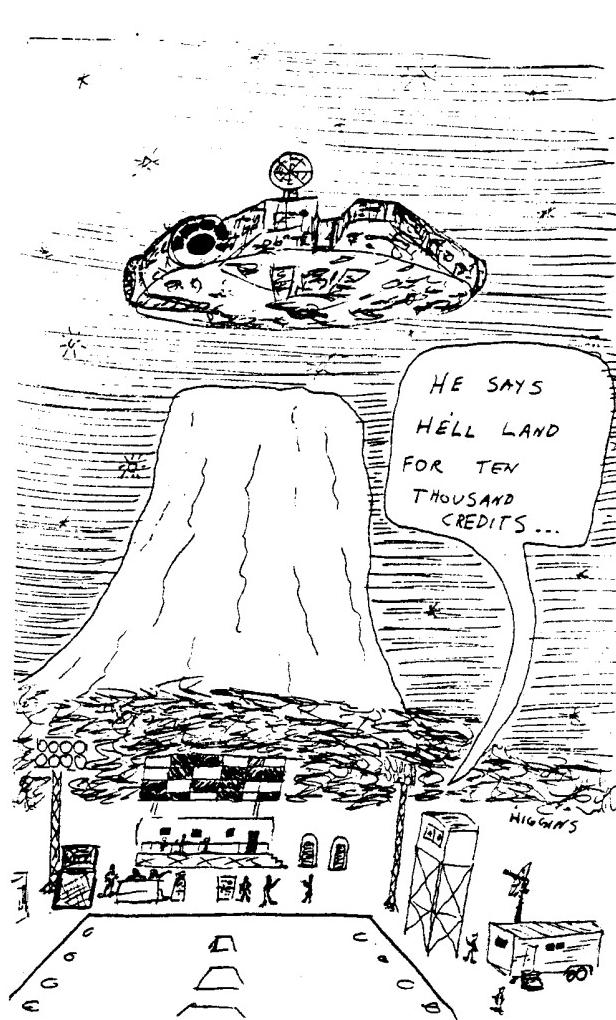


Fig. 15 - Schematic diagram of the phone-patch circuit. Resistances are in ohms, k = 1000. Fixed resistors may be 1/2 watt, 10 percent tolerance. Capacitance is in microfarads.

C1 - Capacitors in parallel to give required value of .0427 μ F; low-voltage metallized paper or Mylar are suitable.

C2 - Typical value .04 μ F.
J1, J2, J3 - Phone jack, J3 should be isolated from chassis.

L1 - Surplus 88-mH toroidal inductor, connected with half-windings in series arading.
M1 - Calectro D1-930 VU meter, modified.

R1, R3 - 5000-ohm audio-taper control (Mallory U4 or equiv.).

T1 - Audio transformer, 4 or 8 ohms to 4000 ohms (UTC SO-10 or equiv.).

T2, T3 - Audio transformer, 2500-ohm split primary, 1000-ohm split secondary (UTC 0-19 or equiv.).

¹M1 is a modified Calectro model D1-930 "VU" meter, as shown in Fig. 2. In early

models, the existing 7,000-ohm multiplier resistor must be replaced by a 365-ohm 1-percent precision resistor. Later models, which may be identified by the letter A appearing in a circle near the bottom of the meter-scale card, are supplied with a 300-ohm resistor which need not be changed. Damping capacitors must be added across the meter coil, observing proper polarity. For early models of the D1-940 meter, the correct capacitance value is 200 μ F; for later models with the circled A appearing on the meter-scale card, the required value is 400 μ F. These values apply only to that particular make and models of meter. The meter, as modified, has a 1-kHz impedance of approximately 6500 ohms. It should be mounted only on a nonferrous panel.

metallized high-wire artist

-BLOOM

MUGHOT ROW

IS YOUR MUG HERE?

The photo below is an example of what not to send us. Your Editor freely admits that he did look like that--back in 1966. But if you saw that creature at a con, you wouldn't say hi--you'd step on it. Send a recent picture of your unclothed face (body optional) to me. A better shot of your Editor next issue.



Carol Duntemann



Steve Johnson



Mike Bentley



Bill Colsher



Michelle Colsher



Jeff Tolliver



Mark Hyde



Tom Andrews

FORKS AND DÄMONS

BY MIKE O'BRIEN

Lo, these many ages ago was promised unto you, dear reader, an explication of the mysteries of computer languages. At last that day has arrived.

FORTRAN, COBOL, ALGOL, SNOBOL, PL/I, BASIC, C, APL... if there are so many of them, there must be a reason why people use so many of them, and so extensively. There is, of course: programmers are among the most creatively lazy people on Earth.

Consider what we've covered so far about computers: registers, memory, CPU, machine instructions...certainly doesn't sound very easy to use, nor very approachable. Well of course, it isn't. A bare machine is almost impossible to use. In the very earliest days of computing, bare machines were all that there were. To use them, you carefully (oh, so carefully!) prepared your program in the machine language of the computer: that is, as a sequence of pure numbers which were the machine instructions which the computer hardware understood. Then you signed up for machine time, and when your turn came up you had the whole machine to yourself. This was before there were operating systems, remember. You entered the instructions in the computer memory, at first by hand, later by punched cards. The "by hand" method was not particularly arduous during the period when it was in use: machines had only 256 words of memory! After entering your machine-language (i.e. all numbers) program, you fired up the machine and either got output, or didn't get output. In that case you went looking through memory, translating binary numbers into octal or hexadecimal representation to make them more manageable, trying to see what the computer had done to the program, or the data, or both. Programmers of that day got very, very good at working with pure numbers. It was absolutely all they had to work with.

Fairly soon there came a revolution, a basic, fundamental concept which made life far easier for the programmer: the assembler. This is simply a bookkeeping technique for preparing machine language programs, but it revolutionized programming almost overnight. In the first place, machine instructions were given mnemonic names: ADD instead of 130000. In the second place, locations in memory may be given symbolic names, and referred to by these names. If a program changes in length, all of the addresses used to store intermediate results, as well as all locations which are the targets of JUMP instructions (which tell the computer where to resume execution, rather than proceeding in a linear fashion to the next location) will change. Hence about half the instructions in the program will change, namely those which reference other locations. The assembler allows you to refer to all such locations by name; the assembler takes care of calculating all the addresses for you. An assembler program might look like the following:

```
CLR A
CLR B
READ 0,A
READ 0,B
ADD A,B
MOV A,C

A: 0
B: 0
C: 0
```

This program is not representative of any real machine. It is merely an example of what such a program might look like. Note that the variables "a," "b," and "c," where numbers are put, are placed right in with the program. The program first "clears," or places a zero, in two of the variables. This is not really necessary; it was done just to add a little body to the program. Then the READ instruction causes the computer to read two numbers from the outside world and place

them in "a" and "b." There is really no computer with a READ instruction; (Mike's macrocomputer bias is showing; the COSMAC processor has seven READ instructions.--Ed.) in reality many instructions must be executed in order to control any interaction with the outside world. The ADD instruction which follows is fully kosher on most machines. It causes the sum of the numbers we read into "a" and "b" to be calculated and placed in "a." How do we know it went into "a" and not into "b?" Because we read it in the manual, that's why. The sum is then moved into a location "c." MOVE is a misnomer because the value is still in "a" as well as in "c." COPY would be a better name, but it is called MOVE for historical reasons. The HALT instruction causes the processor not to execute any further instructions, and proves that the program is not running on a time-sharing system. It isn't fair to halt the machine while other people are using it. Mr. Carter's protestations about the fairness of life to the contrary, machines are generally built in such a way as to ignore a HALT instruction if you are just a normal user of a time-sharing system. The system does something else instead, but it most certainly does not halt. It doesn't keep on running your program, that's for sure.

The last three lines, with colons in them, actually reserve space in the computer memory for cells referred to as "a," "b," and "c." They start life with the value 0 in all three cells. The point in using their names instead of the machine address locations which they represent is that if further instructions were added to or deleted from the program, the locations represented by "a," "b," and "c" would be different as they moved up and down with the end of the program. Hence, we allow the assembler program to handle that problem.

Well, what does the assembler actually do for us? It is a program which reads the characters representing the program above, just as it is written, and produces the binary numbers representing the program in machine language. Basically, that is it. No further translation needs to be done, since each line of the assembler program represents a real machine instruction. A human could, with only moderate effort, translate an assembler program into the same machine instructions which the assembler would produce...only much more slowly, and with the possibility of making a mistake in addressing the variables.

This is still a pain...we must still take our problem and break it down completely into the tiny, and not really very powerful instructions which the machine can execute. Getting beyond this point required a great conceptual leap in the type of program which can be run on a machine, primarily because programming in assembler is a very difficult task.

Then one day two fellows decided that it would be a lot neater if they could simply express what they wanted done in a sufficiently specific form, and have the computer follow a set of general rules in translating their specifications into machine language. Since almost all work being done on computers at that time involved crunching numbers, they called the program that did this translation the Formula Translator, or FORTRAN for short. Everyone who saw them standing in line with their huge decks waiting for machine time thought they were crazy. They all knew damned well that the only way to get a machine to do what you wanted it to do was to tell it, instruction by instruction. Imagine their surprise when all those funny, pseudo-English statements began to produce meaningful output.

FORTRAN, of course, was the first computer language, and is still the most widely used, in numerical applications, at least. Not many of the other languages resemble it, because, as with most first attempts, it has its faults. It is clumsy, clunky, and difficult to use. Statements in the language have to adhere to a rigid format, and the statements themselves make it easy to make mistakes which cause the program to do things you

never intended it to do. And, from the machine's side, FORTRAN is a very difficult language to figure out! The variables must all be picked up from context, and often large amounts of the FORTRAN program must be read before the machine can figure out unambiguously just what a particular statement means in assembler.

The newer languages are much simpler both for people and for the machines which must translate them. Syntax is easier, which makes it better for both parties. And, in most cases, the languages are directed at one particular activity. PL/I is used as a FORTRAN replacement, as it is very good with numbers. If English text is the data being massaged, SNOBOL is very good with characters, while being singularly poor with arithmetic. The specific field of linear matrix algebra has its own language, APL, which regards all data as matrices of one type or another, and the operations on the data types are concatenated together just as in real matrix algebra.

Finally, we have the burgeoning field of formal languages. All of the various attempts to come up with designs for languages which are very easily translated into compact computer programs, but which are easily understood by humans before being translated, have led to a great body of mathematical work on the structure of language itself. English is a super bitch. Sometime, perhaps in a future column, we'll go into the reasons why, as I understand them, you will have to wait a little while before you will be able to tell your oven what time to start the roast--without moving your fingers.



GIGO

DE EWING: I really can't carp about your faulting CETK. Personally, I like Duelling Tubas at a hunnert dB. Good points have to include the fine comic lunacy by the moonburned suburbanite with a Ewing, Wyoming hangup. Likewise, the tollbooth sequence, which brought more audience cheers than I've heard since the noted terrorist team of VanDyke and Fonda stuck up Ma Bell.

You are partly right about the mystico-religioso bit, though it makes good financial sense, and is in the oldest and most honorable SF traditions, namely catering to current crackpot phenomena. When Worlds Go Bonkety Wham, a classic SF film of the fifties with excellent tech for its time, like getting the astronomical blink comparator and mechanical analog computer sequences right, was naturally cashing in on the Velikovskian furor; CETK goes after the VonDanikenites and Black Uniform People with a vengeance. Bully for CETK. There are antecedents going back more than 20 years with impeccable SF credentials, i.e. Dean, Farrell, Heironymous, et. al.

Also much to CETK's credit is the general positive feeling about aliens. Bulgy-headed munkkins with delusions of divinity are quantum leaps above the Green Slime and dome-browed little Connie Bastards out to Steal Our Atomic Secrets.

If you think back over the last few years, the good SF films were the ones that succeed in getting across a basic Nivenesque idea: Space and the Future are going to be BIG. Killer moons with acres of POMPOM guns and planet-killing green death rays. Gigantic trekkie blinkers hooting Hesklinite tuba music. Gigantic slabs the size of Phobos playing Richard Strauss. Gigantic APC's big enough to run over Chicago grinding across the desert to Williams music that sounds like Lawrence of Tatooine. What kind of music will he write for a Ringworld, or for a Golden Ship?

True, there were logical gaps in CETK that you could drive a ramscop through. But it shows Scale. Think of the religious implications of

Hoyle's Black Cloud. Should a rational Human bend the knee to a sentient being the size of the Solar System, or just send him a QSL card? (I vote for the card; I'd be one step closer to Worked All Cosmic Smerps. It's easy enough, since any direction you aim your beam you can't miss!--Ed.)

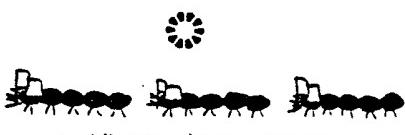
Personally, I got a bigger kick from the blazing Sousa-Bassoons than almost anything since Disney's techs took me through the Krell labs. Would have been nice to have seen more of Jillian's asymmetrical moontan, though, before all those UV-induced skin cancers spoil her looks, and all those top NASA people go blind and retire to a trifid ranch.

Blinkeltwinkel-Honk! Jeff, you're too human-chauvinistic to see the awful truth. The munkkins are not divine, anymore than the Jawarskis. God does not drive a flying saucer. God IS a flying saucer, and She isn't completely logical.

(Well. I never denied the flick was fun; I just mourn what it might have been had it been handled less arrogantly and more carefully. The Alien looked like it had sat in the bathtub too long. I would have preferred something centauroid, or perhaps like Clarke's Outsiders, or damned near anything a little further removed from the generation-old cliche of a little green man with round edges. Jillian was marvelously braless as it was; to show more of her goodies would have been distracting. I went to the show to see flying saucers, not jugs. Just because Dean appeared in Analog and gulled JWC makes him no less a loony, and a greedy one at that. I consider him and anyone else who will not submit an idea to rigorous scientific analysis a fraud and a liability to SF's general credibility. I'm glad God isn't completely logical; I was beginning to wonder about Her for having created mosquitoes.--Ed.)

FROM LEVINE: I couldn't agree with you more on CETK. The worst faults are that it is too silly, for example when the Big Scientists are rolling the globe down the hall, and the whole sequence where Neary tears up his lawn. Awe and mystery may have their place, but you can't stay awed if you laugh every five minutes. Second and biggest blunder: In the big Commuication Sequence, NOTHING GETS SAID! Our side of the conversation consists of repeating the first childish syllables for the first few statements although They are obviously trying to get us to say something else. They have to blast out a window to get that through our thick skulls. Had I been at that keyboard I would have repeated Their first statement as soon as I heard--not played those dum-dum five notes again! But once the Conversation gets started, it is too musical (if you catch my drift) to be communication. There is no mathematical basis for the sequence of tones. Also notice that both parties are "talking" at once. Any fool can tell you there's no way communication can come in a situation like that. Star Wars may have had noise in space, but at least it wasn't jam-packed with non-sequiturs. Third blunder: The damned aliens are too humanoid. I thought little green men went out in the 50's!

(Looks they're back, and they've taken over the National Enquirer; we'll never be rid of them now. I didn't object to the silliness that much. Life can be silly at times, especially when people are caught up in their own enthusiasms. A sense of humor is priceless in any undertaking, but without an underlying sense of consistency and internal logic, the humor can only distract us. A film must make sense, regardless of what it means. Misdirection for its own sake, or for the sake of phony sophistication, is the ploy of essentially stupid artists who have nothing much to say.--Ed.)



mesklinites in a parade

QUARKS

By now, the number of Star Wars promotional ripoffs approaches the number of crackpots in California; you've all seen your fill, I'm sure. Well, Steve Johnson got a call not long ago from a VP at a local suburban shopping mall bank, which was about to open its "Loan Wars" promotion. They had seen Steve and Joe's picture in the papers back last summer, gotten Steve's number from the theater owner, and offered Steve 300 bucks for six weeks rental of the GT robot.

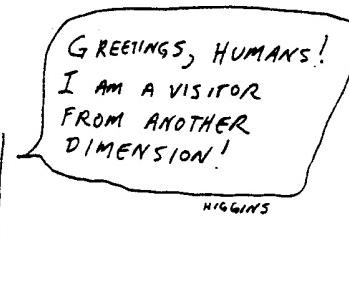
Steve took it. He taught a secretary how to run Joe around, and now Joe delights the kiddies on weekends at Gulf Mill State Bank, while keeping Steve in pocket money. Steve, meanwhile, is hard at work on a new robot, since he has decided that Joe in his present form is too full of loose ends to effectively computerize. More on that robot as it goes together.

Todd Johnson is desperate to find some ruby, Nd:YAG, or Nd:glass laser rods in the \$100.00 price range. I've never seen anything but gas lasers sold on the hobbyist market, but if you have any leads give Todd a call right away.

Mike O'Brien fell off a horse and is now limping around in the Silicon Valley looking for a good physical therapist. Shoulda stayed in Chicago, Mike.

By some weird coincidence, four GT members work in the same Chicago office building at completely unrelated companies. Ben Zuhl works for a real estate firm on the 30th floor; I work for the Big X on the 29th floor, Steve Reubart works for the Flying Tiger Line on the 28th floor, and Linda Struwe sells popcorn in the basement. Strange things happen in this world.

Bill Golsher was approached by a man from Prentice Hall Publishing about doing a book on home computing. He could pick his subject, and run things pretty much as he pleased. Advance is in the seven to ten grand range. Christ. I oughta write a book.



Meshna Electronics sells a complete single IC TT pad including foam keyboard and PC board, for \$12.95. I have used the ME8900 IC, and it works. Strongly recommended.

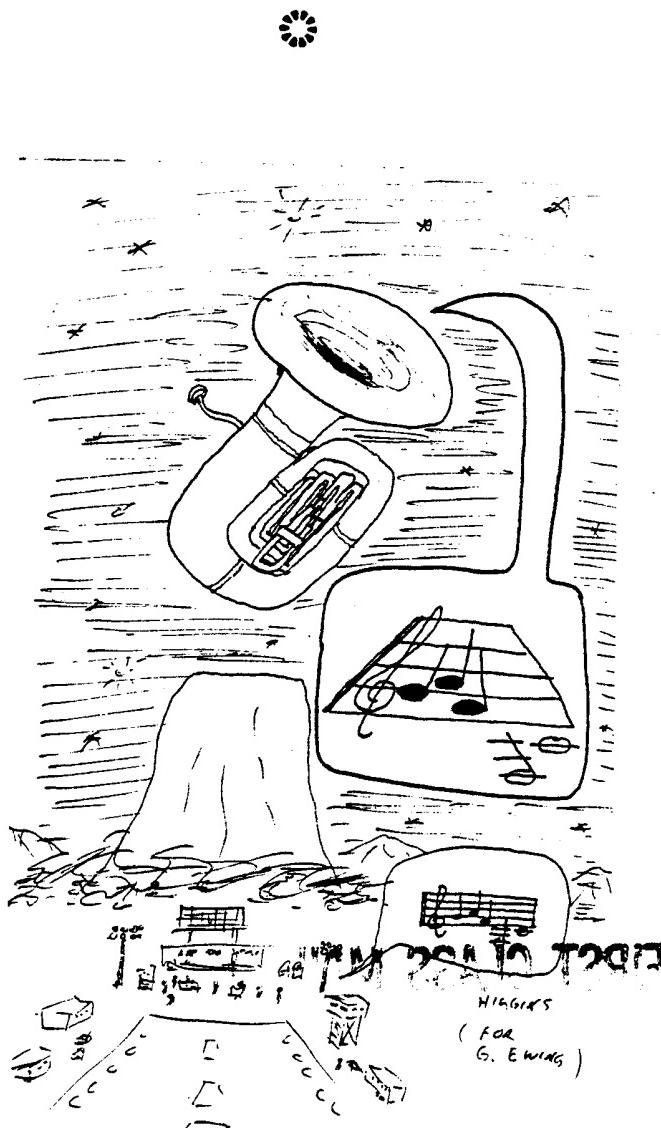
On the mailing face of this issue is a little notice telling you how many 13 cent stamps you have left. Sure as hell, by the time the next Pyro appears we will be paying 15 cents a crack to the almighty Post Office, so I will need some 2's to cover future issues. What you might want to do is send me enough 2's to cover about three quarters of your 13's, with the remaining 13's available for second-ounce postage on oversized issues. In the meantime, write to your congressman and tell him he's out the door on his ass unless he does something to keep the Post Office within budget. Post Office employees are among the laziest, surliest, least productive federal employees there are; I know; I have worked among them. Wouldn't hurt to fire about a third of them. They'd never be missed.

Doug Van Dorn, my future brother-in-law, graduated from NIU in journalism on a Saturday, and started his first journalism job on a real newspaper the following Monday. Nice to know miracles still happen once in a while. Good going, Doug.

Tullio writes to say that he, too, is going into real estate by sinking his life savings into a Kalamazoo castle along with Renee Sieber. The new address is: 530 West Walnut Kalamazoo MI 49007 (516) 342-4967. He is forming an honest-to-god company at the same address to cover his raygun and techie-toy business. The name is Isher Enterprises, and if you send him a check for something, make it payable to Isher Enterprises. He also wants all Master Techies to drop him a postcard (take out a mortgage for that, too) and let him know what you think ought to be done with the Masters program. He also wants to know how and when each Master became a Master. Let him know, OK?

Carol and I will be throwing a party in our new castle this June 17. Any of you out-of-towners who can manage it, by all means stop in.

Sunday night, June 4, Mars and Saturn will make a very close apparent approach in the sky. Should be nice to see. Get those telescopes out!

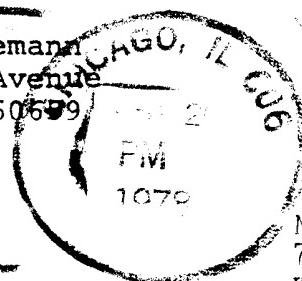




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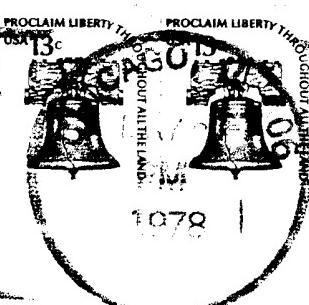
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